Supplement

Bio-5000 features, scenarios, and information

Getting to Know Your Bio-5000

The Bio-5000 is a combined flatbed and film scanner for electrophoresis gels and film formats that also offers additional functionality to scan reflective art or prints as large as 8.5" x 14". The Bio-5000 is equipped with Microtek's patented Emulsion Direct Imaging Technology (E.D.I.T.) for delivering distortion-free images in transparency scanning. The 0.05 minimum optical density (Dmin) provides a wider and clearer range for capturing light tones of images.

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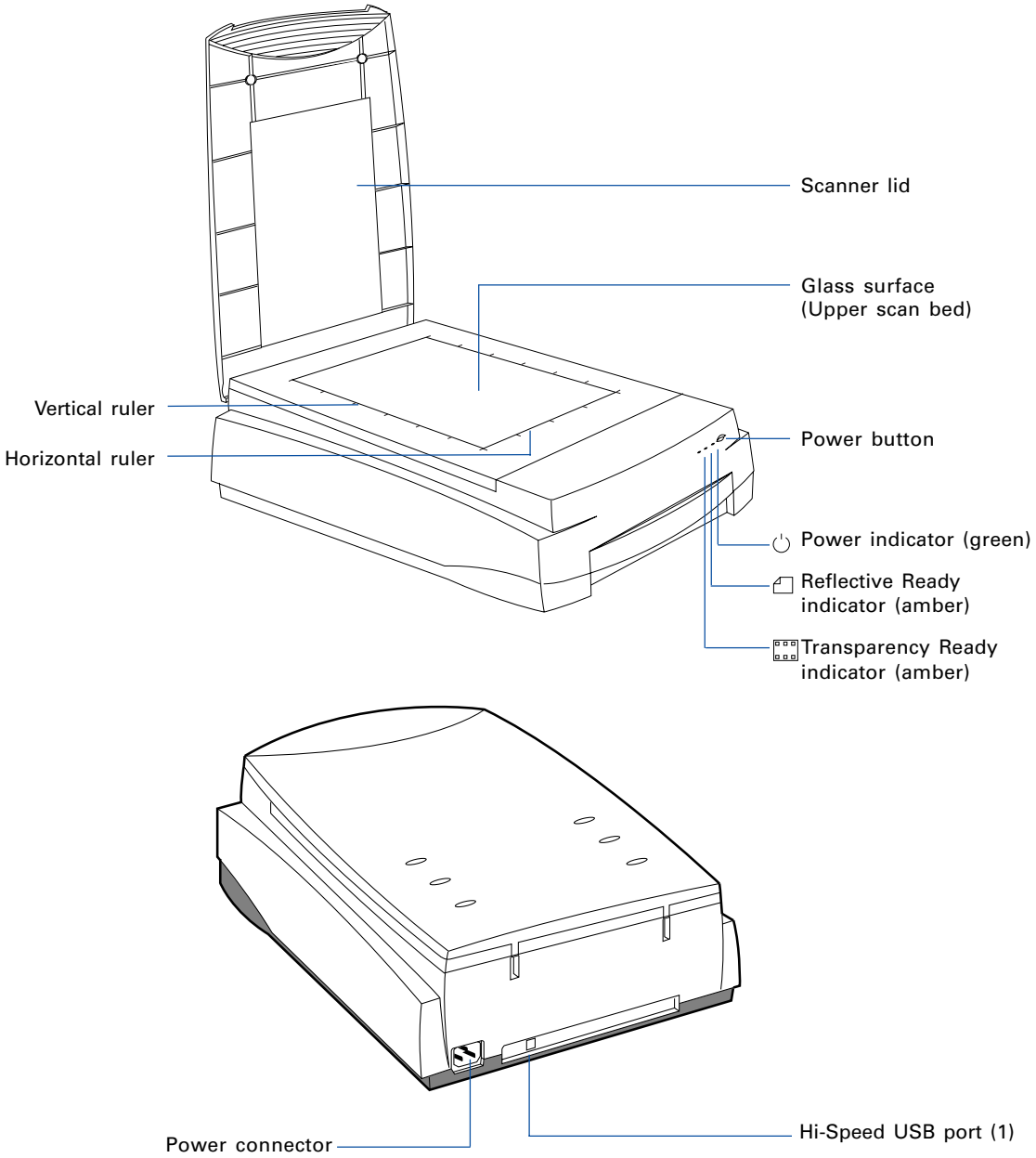
Features of the Bio-5000

The Bio-5000 comes with several important features, including the following:

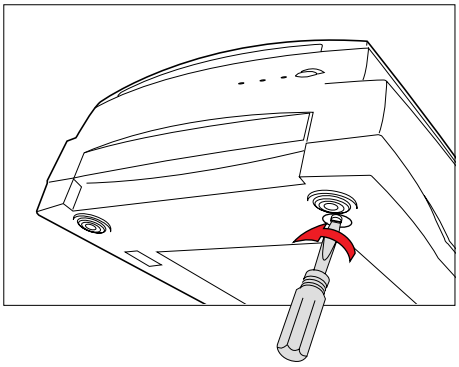
- One machine to scan all: With specially designed Leak-Free Glass Holders, the Bio-5000 allows you to scan electrophoresis gels and transparent films directly in the machine. It also supports scanning of reflective materials, such as photos and prints.
- Microtek's Emulsion Direct Imaging Technology (E.D.I.T.): This is a patented “glassless” scanning system built into the lower bay of Microtek’s dual media scanners, allowing the scanner CCD to directly read the emulsion side of the film during scanning without any interfering pane of glass. This effectively eliminates problems associated with normal glass transparency scanning like Newton Rings, resulting in distortion-free images.
- Auto Focus: An image improvement feature introduced to Microtek flatbeds, Auto Focus allows the scanner to change the focus position on images through the movement of the CCD, resulting in better image quality for a chosen area of the scan. Auto Focus is activated by default when the scanner is on but can be switched off manually before the final scan is carried out. The results of Auto Focus can be best seen when used with uneven, creased photos and film.
- 4800 x 9600-dpi resolution: The exceptionally high resolution of the Bio-5000 lets you scan even postage-size images and enlarge them with amazing clarity, with little loss of detail. The scanner's 0.05 minimum optical density (Dmin) allows it to capture a wide range of dark tones approximating real-life color and hues.
- Microtek ScanWizard™ Bio scanning software: This is an advanced scanner controller program that provides many powerful, professional-level features for scanning.
- Hi-Speed USB interface: High-Speed USB (USB 2.0) , which is capable of 480Mbps data transfer, provides plug-and-play connectivity for a hassle-free installation.

Taking a Closer Look



Unlocking the Scanner

Before you can operate the scanner, you will need to unlock the scanner. To unlock the scanner, follow the steps below:

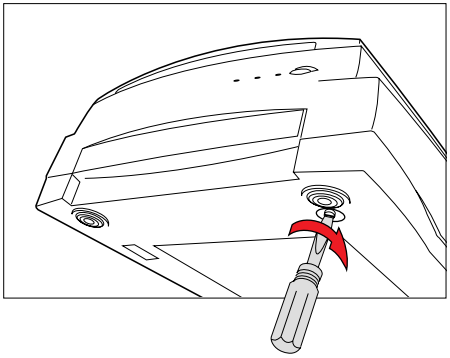


1. Remove the yellow “Unlock” sticker from your scanner.
2. Look for the unlocking screw at the bottom of the scanner.
3. Using a screwdriver, push and turn the locking screw counterclockwise to the unlock position.

   When successfully unlocked, the screw will push out a little, protruding slightly from the bottom of the scanner.

Shipping the Scanner

If you have to transport the scanner, you will need to lock the scanner back. Follow the steps below:

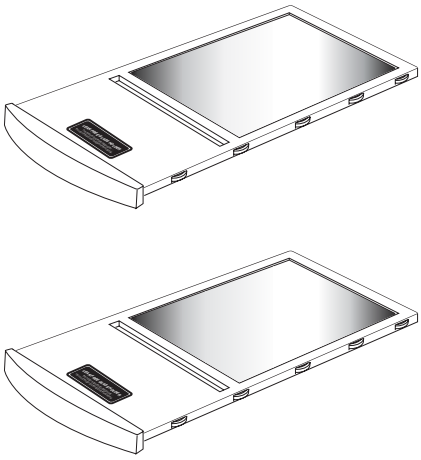


1. Turn off the scanner if your scanner is on.
2. Turn the scanner back on. The scanner’s carriage will move to the standby position in 5 minutes.
3. When the indicators on the front of your scanner stop blinking, use a screwdriver, and then push and turn the locking screw clockwise to the locked position.

   When the screw has been tightened, this indicates that your scanner is locked.
4. Turn off your scanner. The scanner is now ready for transport.

Positioning Your Originals

Aside from the scanning of reflectives, there are two pieces of Leak-Free Glass Holders come with your scanner package, which are specifically designed to scan electrophoresis gels and transparent film.

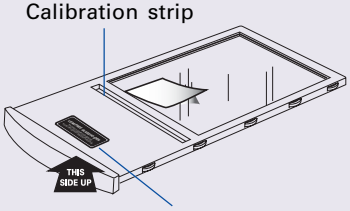


Leak-Free Glass Holders (2 pieces)
(used to scan electrophoresis gels and transparent film)

Proper positioning of the scan material on the scanner is important for successful scanning. Before starting scanning, refer to the individual section in the succeeding pages about how to correctly position the electrophoresis gels, transparent film, and reflectives.

Before proceeding your scan, take note of the information presented below:

- When using the **Leak-Free Glass Holders**, make sure you use the **correct side up** when inserting the holders into the scanner. The correct side up is the side showing the holder labels facing up.
- Make sure that the **calibration strip** on the holders are kept clear and free of obstruction at all times; no material should ever be placed on this area. Also, make sure the calibration strip faces the front of the scanner when you insert the holder into the lower compartment of the Bio-5000.
- Please take note that the high temperature may cause the damage to your electrophoresis gels, transparencies and reflective materials. Therefore, remember to turn off the scanner and remove the scanned materials from the scanner once you finish the scan job.



The correct side up is the side showing the holder labels facing up

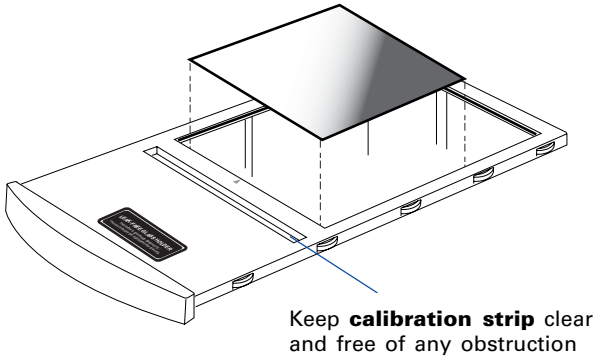
Note: *The Leak-Free Glass Holders require regular cleaning. To clean, use mild glass cleaning solution, and wipe the glass plate gently with lint-free, lens-cleaning cloth to prevent leaving fiber residue.*

Positioning Electrophoresis Gels

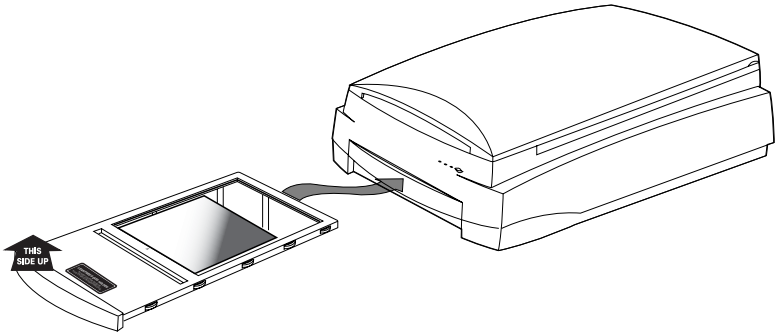
This procedure applies when you use the lower scan bed of the Bio-5000 to scan the electrophoresis gels.

Using the Leak-Free Glass Holder

1. Place the electrophoresis gel to be scanned on top of the glass surface of the Leak-Free Glass Holder.



2. Insert the holder all the way into the transparency bay (lower compartment) of the scanner. Make sure the holder is inserted correct side up.

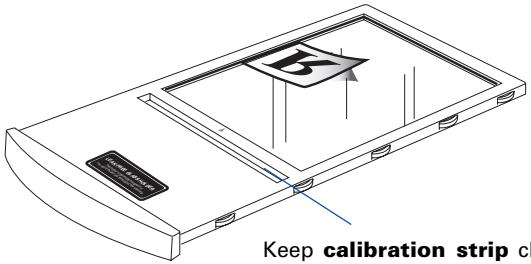


Positioning Transparent Film

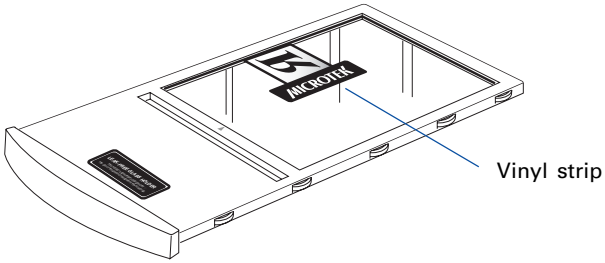
This procedure applies when you use the lower scan bed of the Bio-5000 to scan transparencies, such as positive or negative film.

Using the Leak-Free Glass Holder

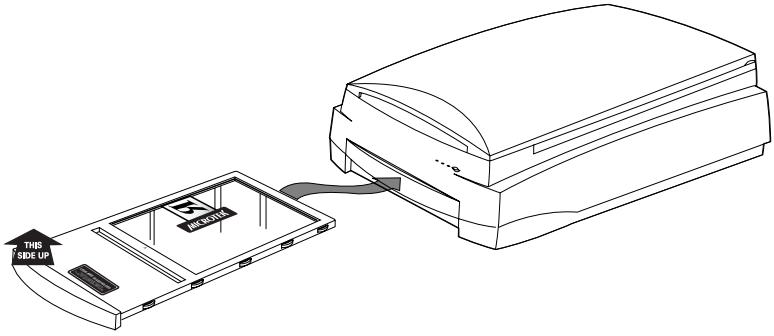
1. Place the film to be scanned face down on top of the glass surface of the Leak-Free Glass Holder.



2. Secure the film to the glass by using the vinyl strips come with your scanner package.



3. Insert the holder all the way into the transparency bay (lower compartment) of the scanner. Make sure that the holder is inserted correct side up.

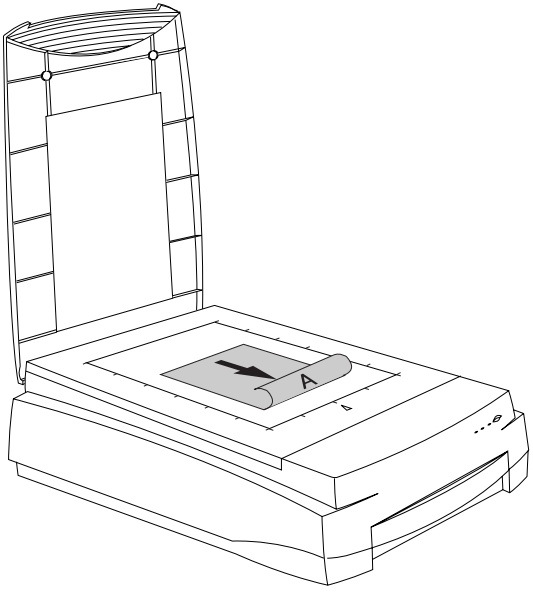


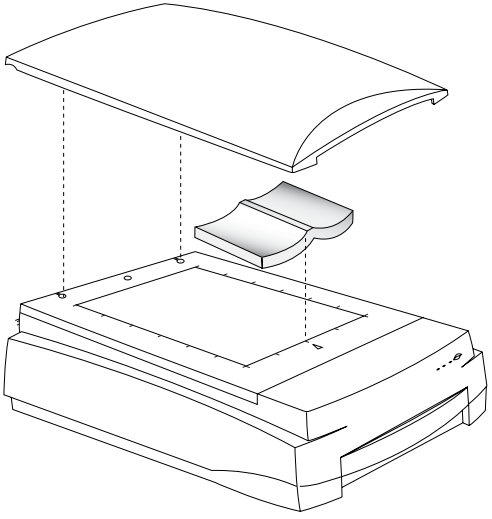
Positioning Reflective Originals

This procedure applies when you use the upper scan bed of the Bio-5000 to scan reflective materials, such as photos and prints.

1. Open the scanner lid.
2. Place the original to be scanned face down on the scanner glass bed, towards the front of the scanner. Center the top of the original along the horizontal ruler on the scanner.

   Note: To scan a book or thick materials/documents, lift the scanner lid out of its hinge sockets high enough to create room between the originals and the lid.
3. Lower the scanner lid.



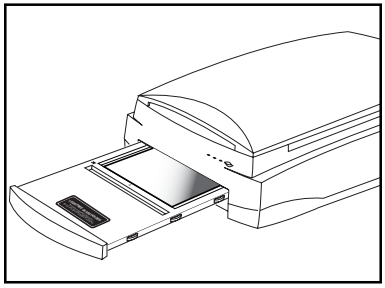


Scanning Scenarios

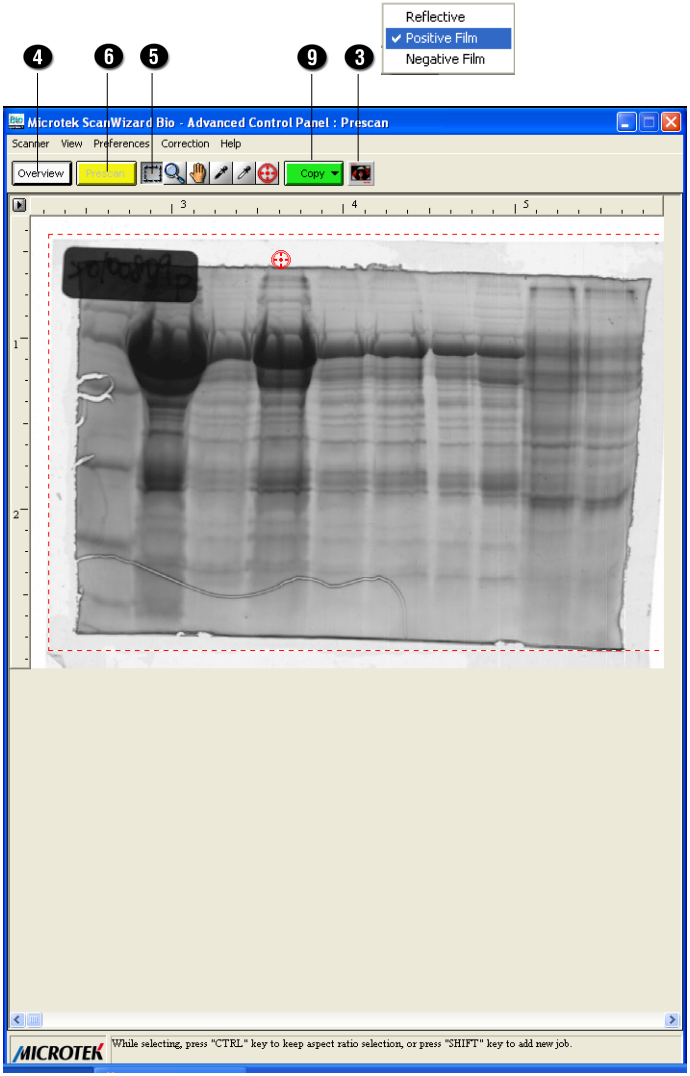
The following pages provide various scenarios for scanning with the Bio-5000, including the following:

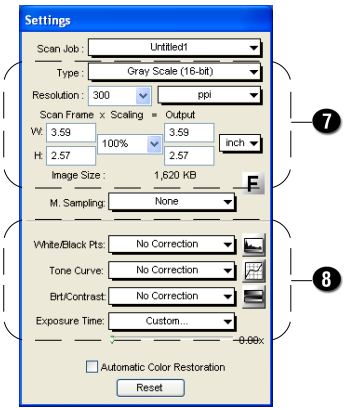
- Scanning electrophoresis gels: This scenario details the steps for scanning electrophoresis gels.
- Scanning transparent film: This scenario details the steps for scanning transparent film, such as 4" x 5" positive or negative film.
- Scanning reflective originals: This scenario details the steps for scanning reflective materials, such as photos and prints.
- Scanning originals applied with Auto Focus: This scenario details the steps for applying the Auto Focus function to a selected area of the image to be scanned, in order to improve that area of the image.

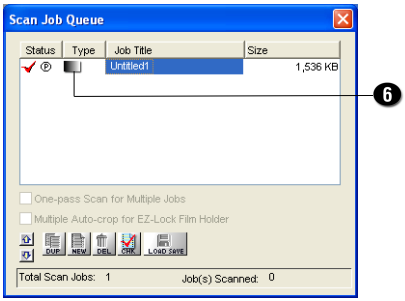
Scanning Electrophoresis Gels



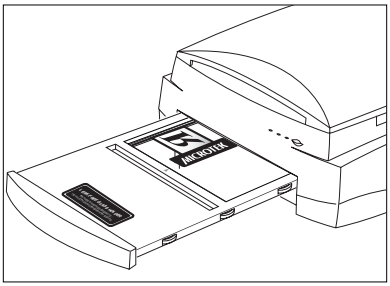
1. Insert the **Leak-Free Glass Holder** with the electrophoresis gel into the transparency bay of the scanner. Make sure that nothing is on the scanner glass surface.
2. Launch **ScanWizard Bio** either as a stand-alone by clicking on the program icon, or by using the File-Import or File-Acquire command from your image-editing program.
3. Go to the Preview window and choose **Positive Film** from the **Scan Material** menu.
4. Click the **Overview** button to perform a preliminary scan of your original.
5. Select the **Scan Frame** tool from the Toolbar in the Preview window, and choose the area to be scanned by dragging a rectangle around it. You will see a flashing frame (marquee) around the selected area.
6. Click the **Prescan** button to display a detailed image area selected via the Scan Frame tool. A thumbnail of the image appears as well in the Scan Job Queue window.
7. Specify your scanning requirements in the Settings window.
   a) Select a desired image type.
   b) Select a desired resolution.
   c) Adjust the scan frame settings if necessary.
8. Adjust image quality if necessary, using the Advanced Image Correction (AIC) tools.
9. Click the **Scan** (or "Scan to") button in the Preview window to start scanning.
   - If ScanWizard Bio was launched from an application program, the image is then delivered to your application, where the image can be saved, printed, or edited.
   - If ScanWizard Bio was launched in stand-alone mode, you will be prompted to specify the file attributes for the scanned image after the Scan or Scan to button is pressed, such as entering the file name, specifying a folder name of your own, etc. When you have completed the settings, press the Done/Save button, and the scanner will automatically scan and save your image based on your settings.


Reflective
Positive Film
Negative Film
4
6
5
9
3
Microtek ScanWizard Bio - Advanced Control Panel : Prescan
Scanner View Preferences Correction Help
Overview
Copy
MICROTEK
While selecting, press "CTRL" key to keep aspect ratio selection, or press "SHIFT" key to add new job.


Settings
Scan Job : Untitled1
Type : Gray Scale (16-bit)
Resolution : 300 ppi
Scan Frame x Scaling = Output
W: 3.59 100% 3.59
H: 2.57 2.57 inch
Image Size : 1,620 KB
M. Sampling: None
White/Black Pts: No Correction
Tone Curve: No Correction
Brt/Contrast: No Correction
Exposure Time: Custom...
0.00x
Automatic Color Restoration
Reset
7
8


Scan Job Queue
Status Type Job Title Size
Untitled1 1,536 KB
One-pass Scan for Multiple Jobs
Multiple Auto-crop for EZ-Lock Film Holder
Total Scan Jobs: 1
Job(s) Scanned: 0
6

Scanning Transparent Film

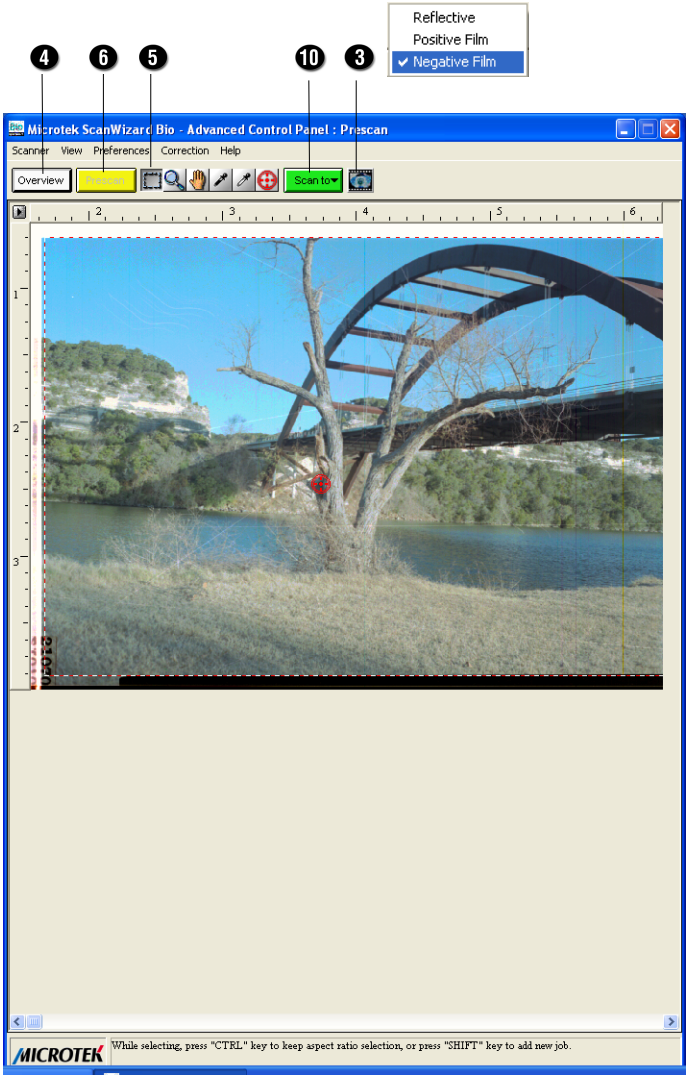


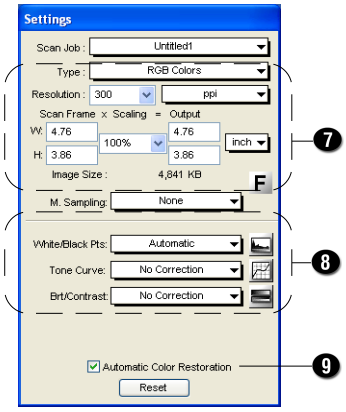
1. Insert the **Leak-Free Glass Holder** with the film into the transparency bay of the scanner.

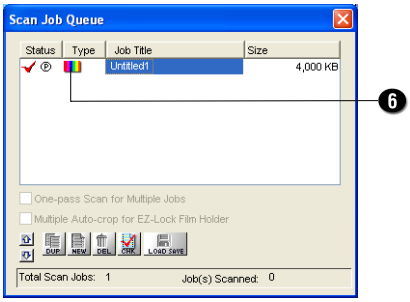
   Make sure that nothing is on the scanner glass surface.

2. Launch **ScanWizard Bio** either as a stand-alone by clicking on the program icon, or by using the File-Import or File-Acquire command from your image-editing program.
3. Go to the Preview window of ScanWizard Bio, and choose the correct type for the film from the **Scan Material** menu.

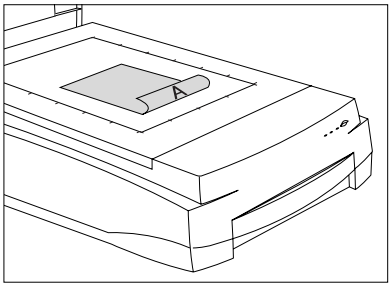
   Choose **Negative Film** to scan negatives, or choose **Positive Film** to scan positives.
4. Click the **Overview** button to perform a preliminary scan of your original.
5. Select the **Scan Frame** tool from the Toolbar in the Preview window, and choose the area to be scanned by dragging a rectangle around it. You will see a flashing frame (marquee) around the selected area.
6. Click the **Prescan** button to display a detailed image. A thumbnail of the image appears as well in the Scan Job Queue window.
7. Specify your scanning requirements in the *Settings* window.
   a) Select a desired image type.
   b) Select a desired resolution.
   c) Adjust the scan frame settings if necessary.
8. Adjust image quality if necessary, using the Advanced Image Correction (AIC) tools.
9. If the colors in your film are faded and need restoring, check the "Automatic Color Restoration" box in the Settings window.
10. Click the **Scan** (or "Scan to") button in the Preview window to start scanning.
    - If ScanWizard Bio was launched from an application program, the image is then delivered to your application, where the image can be saved, printed, or edited.
    - If ScanWizard Bio was launched in stand-alone mode, you will be prompted to specify the file attributes for the scanned image after the Scan or Scan to button is pressed, such as entering the file name, specifying a folder name of your own, etc. When you have completed the settings, press the Done/Save button, and the scanner will automatically scan and save your image based on your settings.


Reflective
Positive Film
Negative Film
4
6
5
10
3
Microtek ScanWizard Bio - Advanced Control Panel : Prescan
Scanner View Preferences Correction Help
Overview
Preview
Scan to
While selecting, press "CTRL" key to keep aspect ratio selection, or press "SHIFT" key to add new job.

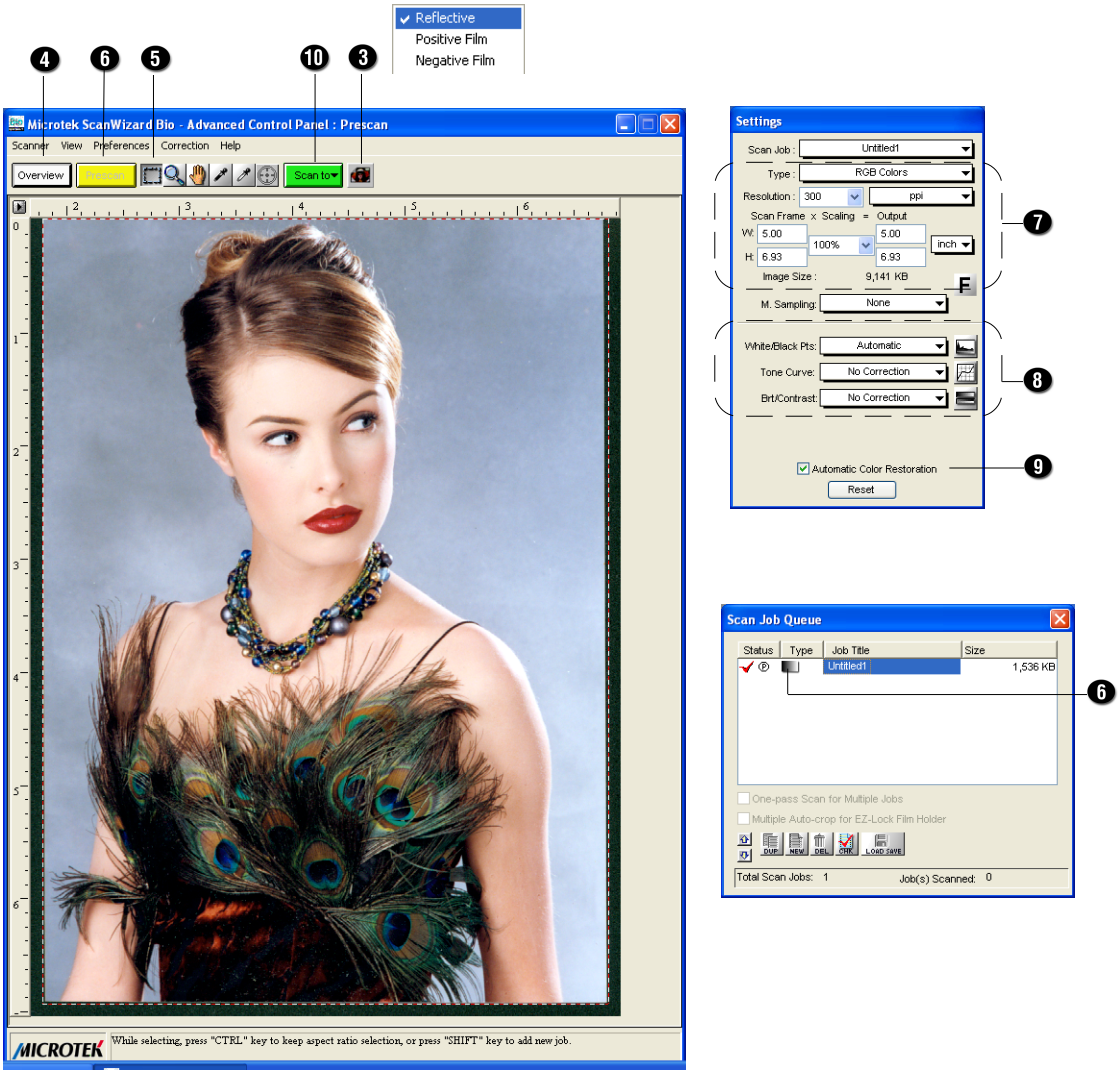

Settings
Scan Job : Untitled1
Type : RGB Colors
Resolution : 300 ppi
Scan Frame x Scaling = Output
W: 4.76 100% 4.76
H: 3.86 3.86
inch
Image Size : 4,841 KB
M. Sampling: None
White/Black Pts: Automatic
Tone Curve: No Correction
Brt/Contrast: No Correction
Automatic Color Restoration
Reset
7
8
9


Scan Job Queue
Status Type Job Title Size
Untitled1 4,000 KB
One-pass Scan for Multiple Jobs
Multiple Auto-crop for EZ-Lock Film Holder
Total Scan Jobs: 1
Job(s) Scanned: 0
6

Scanning Reflective Originals



1. Raise the scanner lid, and place the reflective original to be scanned face down on the scanner glass bed, towards the front of the scanner. Center the top of the original along the horizontal ruler on the scanner.
2. Launch **ScanWizard Bio** either as a stand-alone by clicking on the program icon, or by using the File-Import or File-Acquire command from your image-editing program.
3. Go to the Preview window of ScanWizard Bio, and choose **Reflective** from the **Scan Material** menu.
4. Click the **Overview** button to perform a preliminary scan of the image, which will appear in the Preview window.
5. Select the **Scan Frame** tool from the Toolbar in the Preview window, and choose the area to be scanned by dragging a rectangle around it. You will see a flashing frame (marquee) around the selected area.
6. Click the **Prescan** button to display a detailed image area selected via the Scan Frame tool. A thumbnail of the image appears as well in the Scan Job Queue window.
7. Specify your scanning requirements in the Settings window.
   a) Select a desired image type.
   b) Select a desired resolution.
   c) Adjust the scan frame settings if necessary.
8. Adjust image quality if necessary, using the Advanced Image Correction (AIC) tools.
9. If the colors in your reflective original are faded and need restoring, check the "Automatic Color Restoration" box in the Settings window.
10. Click the **Scan** (or "Scan to") button in the Preview window to start scanning.
    - If ScanWizard Bio was launched from an application program, the image is then delivered to your application, where the image can be saved, printed, or edited.
    - If ScanWizard Bio was launched in stand-alone mode, you will be prompted to specify the file attributes for the scanned image after the Scan or Scan to button is pressed, such as entering the file name, specifying a folder name of your own, etc. When you have completed the settings, press the Done/Save button, and the scanner will automatically scan and save your image based on your settings.


Reflective
Positive Film
Negative Film
4
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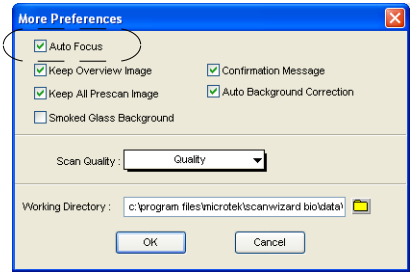
10
3
Microtek ScanWizard Bio - Advanced Control Panel : Prescan
Scanner View Preferences Correction Help
Overview
Scan to
MICROTEK
While selecting, press "CTRL" key to keep aspect ratio selection, or press "SHIFT" key to add new job.
Settings
Scan Job : Untitled1
Type : RGB Colors
Resolution : 300 ppi
Scan Frame x Scaling = Output
W: 5.00 100% 5.00 inch
H: 6.93 6.93
Image Size : 9,141 KB
M. Sampling: None
White/Black Pts: Automatic
Tone Curve: No Correction
Brt/Contrast: No Correction
Automatic Color Restoration
Reset
7
8
9
Scan Job Queue
Status Type Job Title Size
Untitled1 1,536 KB
6
One-pass Scan for Multiple Jobs
Multiple Auto-crop for EZ-Lock Film Holder
Total Scan Jobs: 1
Job(s) Scanned: 0

Scanning Originals Applied with Auto Focus

By default, the Auto Focus function is activated when your Scan Material is set as Positive Film or Negative Film. It is disabled when your Scan Material is set as Reflective. If you like to apply the Auto Focus function to your reflective originals, such as photos or prints, you need to go to the Preferences menu and to select the More... command, and then check the Auto Focus to activate this function.

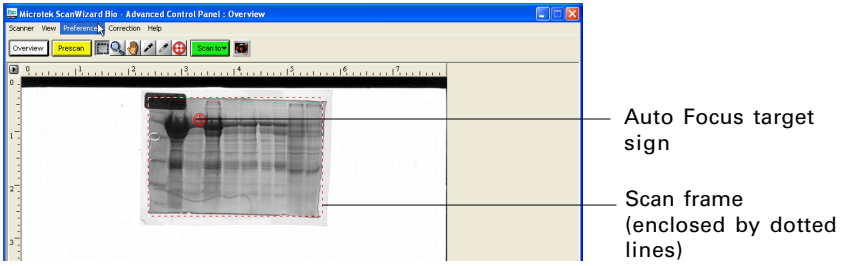


1. Follow steps 1 to 3 in the previous scanning scenarios to place your scan material (electrophoresis gel, reflective or film), and to launch ScanWizard Bio.
2. Click the **Overview** button to perform a preliminary scan of the image.

   If this is the first time to scan your scan material, you can see a flashing frame (enclosed by dotted lines) together with a default Auto Focus target sign ( ) appearing on the preview area. The Auto Focus target sign marks the area where the Auto Focus is applied to.
3. To apply the Auto Focus function to the image, use either of the ways below:

   - The area applied with the Auto Focus function is decided and selected by the software system automatically.

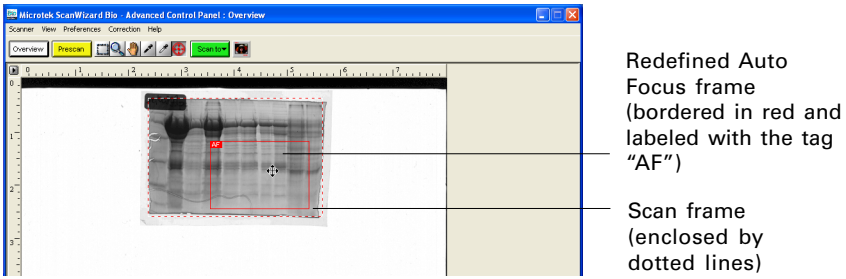
     Click the **Overview** button to perform a preliminary scan of the image, which will appear in the Preview window. Immediately, you can see a target sign ( ) appearing on the overview image. The target sign marks the area where the Auto Focus is applied to. In this case, the software system automatically detects, calculates and selects the area applied with the Auto Focus function.



- Select and apply the Auto Focus function to a specific area of the scan frame by yourself

  a) Select the **Scan Frame** tool from the Toolbar in the Preview window, and choose the area to be scanned by dragging a rectangle around it.

  b) Select the **Auto Focus** tool from the Toolbar in the Preview window, and choose the area in the scan frame to which the AF function will be applied.


Microtek ScanWizard Bio - Advanced Control Panel : Overview
Scanner View Preferences Correction Help
Overview
Prescan
Scan to
AF
Redefined Auto Focus frame (bordered in red and labeled with the tag "AF")
Scan frame (enclosed by dotted lines)

A redefined Auto Focus frame (bordered in red) will appear within the scan frame, labeled with the tag "AF".

Note: *The AF frame works only in the area defined by the scan frame.*

4. In the Preview window, click the Prescan button. This will give you a more detailed view of the image area in which the AF function is applied.

5. If necessary, follow steps 7 to 9 (or 10) in the previous scanning scenarios to define scan settings for your image.

6. Click the **Scan** (or "Scan to") button in the Preview window to start the final scan. This final scan process will include the Auto Focus function to make the image look clearer and sharper.

Specifications

Scanning Modes	Color and grayscale in a single scanning pass True 48-bit color (approx. 281 x 10^{12} colors) 16-bit grayscale (approx. 65,536 shades of gray)
Scanning Area	Reflective: Max. 8.5″ x 14″ (216 mm x 356 mm) Min. 0.75" x 0.75" (19 mm x 19 mm) Transparency: Max. 8" x 10″ (203 mm x 254 mm) Min. 0.75" x 0.75" (19 mm x 19 mm)
Resolution	Optical: 4800 dpi x 9600 dpi Interpolated: 65,535 dpi
Interface	Hi-Speed USB (USB 2.0)
Dimensions (L x W x H)	22.3″ x 15.2″ x 6.2″ (567 mm x 385 mm x 158 mm)
Weight	26.5 lbs (12 kg)
Voltage	AC 100V to 240V; 50-60 Hz
Power Consumption	35 W
Environment	Operating Temperature: 50° F to 104° F (10° C to 40° C) Relative Humidity: 20% to 85%

System Requirements

General Requirements

- CD-ROM drive (for installing software)
- Color display with 24-bit color output capability
- 512 MB RAM or more

PC and compatibles

- Pentium IV PC or higher with USB, or Hi-Speed USB (USB 2.0) port
- Microsoft Windows 2000, XP, Vista or Windows 7

Important

Specifications, software bundles, and accessories are subject to change without notice. Not responsible for typographic errors.

FCC Compliance Statement

This equipment (Model: MRS-9600TFU2B) has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Note: *A shielded Hi-Speed USB interface cable with ferrite core installed on the scanner connector and must be used with this equipment.*

Caution: Changes or modifications not expressly approved by the manufacturer responsible for compliance could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.